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Claims

1. Process for the preparation of a steel surface for hot-dip galvanising in a zinc based molten bath, comprising the steps of cleaning the surface by either one of electrocleaning, ultrasonic cleaning and brush cleaning, pickling the surface, and applying a protective layer to the surface by immersion in a flux solution, characterised in that
- 10 the cleaning is performed to a level of less than $0.6 \mu\text{g}/\text{cm}^2$ residual dirt, and
the flux solution comprises a soluble bismuth compound
2. Process according to claim 1, characterised in that the
- 15 cleaning is performed by electrocleaning, whereby at least $25 \text{ C}/\text{dm}^2$ is passed through the steel surface
3. Process according to claim 1, characterised in that the pickling is performed by either one of electropickling, ultrasonic pickling and ion exchange pickling using an Fe(III) chloride solution
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4. Process according to claims 1 to 3, characterised in that the soluble bismuth compound is an oxide, a chloride or a hydroxychloride
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5. Process according to claims 1 to 4 characterised in that the flux is an aqueous solution comprising between 0.3 and 2 wt% of bismuth
6. Process according to claims 1 to 5 characterised in that the
- 30 flux solution further comprises at least 7 wt% of NH_4Cl
7. Process according to claim 6 characterised in that the flux solution comprises between 8 and 12 wt% of NH_4Cl
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8. Process according to claims 6 or 7, characterised in that the flux solution further comprises between 15 and 35 wt% of ZnCl_2

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9. Process for single-dip galvanising of steel using an aluminium containing molten zinc baths, whereby the steel surface is prepared according to claims 1 to 8
- 5 10. Process according to claim 9, whereby the aluminium containing zinc bath further contains at least 0.15 % Al, and preferentially between 2 and 8 wt% Al
- 10 11. Process according to claim 10 whereby the aluminium containing zinc bath is a Galfan bath
12. Process according to claims 1 to 11, characterised in that the steel is in the form of a continuous product
- 15 13. Process according to claim 12, characterised in that the continuous product is steel wire, tube or plate